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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,689	03/06/2002	Bojana Gajic	2001-0105	7430

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EXAMINER	
PIERRE, MYRIAM	
ART UNIT	**PAPER NUMBER**
2654	

DATE MAILED: 04/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/091,689	GAJIC ET AL.	
	Examiner	Art Unit	
	Myriam Pierre	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-14 is/are rejected.

7)☒ Claim(s) 13 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 14 is objected to because of the following informalities: claim 14 is the exact duplicate of claim 1. Appropriate correction is required.

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of application 09/972,929. Although the conflicting claims are not identical, they are not patentably distinct from each other because they perform similar functions, determining parameters of a background model and a transducer model for a received voice request, determining a speech recognition model based on at least one of the

background model and the transducer model, and determining information in the received voice request based on the re-scored results of the speech recognition model.

So, as to claims 1-14 their difference from claims 1-14, of the conflicting application, is rescoring ASR instead of "adapting the speech recognition model".

It would have been obvious to one of ordinary skill in the art at the time of invention to use rescore information from an ASR that would have required adapting.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 4-5, 8-9, 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gong (6,418,411) in view of Digalakis et al. (5,864,810).

As to claims 1, 5, 9, & 13-14

Gong teaches

determining parameters of a background model and a transducer model for a received voice request **{incoming utterance} (produce an adapted model based on inputs from on-line noise estimations (background adaptation) and one-time adaptation (transducer model), incoming utterance, col. 1, lines 42, 59-63, col. 2, lines 44-50 and Fig. 1, elements 11 & 20).**

determining a speech recognition model based on at least one of the background model and the transducer model **(Fig. 1, element 21 and col. 2, lines 59-61 steps 4-5)**

estimation and adaptation **(adaptation of HMM and estimation channel, col. 1, lines 38 & 63)**, which would necessarily be implemented in a circuit device **(cellular phone, col. 1, line 15)**.

Gong does not teach of rescoring ASR.

However, Digalakis et al. teach

re-scoring automatic speech recognition using the speech recognition model comprising the steps of:

generating word lattices representative of speech utterances in he received voice request **(col. 11, lines 40-44)**;

concatenating the word lattices into a single concatenated lattice **(sentence hypothesis necessarily implies word lattices, co. 13, lines 45-46)**;

applying at least one language model **(language model)** to the single concatenated lattice in order to determine word lattice inter-relationships **(col. 13, lines 38-46)**; and

determining information in the received voice request based on he re-score results of the speech recognition model **(rescoring the N-best sentence hypothesis, col. 13, lines 45-46)**.

estimation and adaptation **(adaptation of HMM and estimation channel, col. 1, lines 38 & 63)**, which would necessarily be implemented in a circuit device **(cellular phone, col. 1, line 15)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Gong's method of speaker adaptation by re-scoring ASR that generates and links words in order to improve recognition performance for non-native speakers of American English, as taught by Digalakis et al., col. 13, lines 29-30.

Neither Gong nor Digalakis et al. explicitly teach using a computer (controller) or software program.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement the system in a computer that necessarily uses software for easy updating of the system.

3. Claims 2, 6, & 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gong (6,418,411), in view of Digalakis et al. (5,864,810), as applied to claim 1, and in further view of Thrasher et al. (20020052742).

As to claims 2, 6 and 10, Gong teaches

determining at least one sample period **(sample period for background nose is determined before speech utterance, noise sample, Fig. 2)**

determining at least one of a new background model and a new transducer model based on the at least one sample period **(background model is determined based on the samples taken during the sample period, col. 2, lines 43-45 and element 19, Fig. 1)**.

Neither Gong nor Digalakis et al. teach confidence score.

However, Thrasher et al. teach

generating a confidence score **(confidence measure, col. 3, paragraphs 0035-0036)** after applying the at least one speech recognition model **(language model, Fig. 2, element 110)** to determine whether the generated lattices are acceptable **(identifiers indicating which patterns may have been improperly identified, col. 3, paragraphs 0035-0036)**.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Gong's models such that it generates a confidence score, to identify which patterns are mostly likely to have been improperly identified by the recognizer, as taught by Thrasher et al., col. 3, paragraph 0035.

4. Claims 3, 7, & 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gong (6,418,411), in view of Digalakis et al. (5,864,810), as applied to claim 1, in view of Thrasher et al. (20020052742), as applied to claims 2, 6, and 10, and in further view of Waibel et al. (5,712,957).

As to claims 3, 7 and 11, Gong teaches

the parameters of the background model are determined based on a first sample period **(sample period for background noise is determined before speech utterance, Fig. 2);**

the parameters of the transducer model are determined based on a second sample period **(sample period for transducer model takes place during one-time**

adaptation (calibration), which takes place before on-line adaptation and thus inherently requires a second, distinct sampling, col. 5, lines 23-28)

Gong and Thrasher et al. do not explicitly teach comparing confidence scores to determine weather to perform the ASR process again.

However, Waibel et al. teach

the confidence score is compared to a predetermined value **(threshold value)** in order to determine weather to perform the automatic speech recognition process again **(repeat again, col. 1, lines 56-59)**.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Cong in combination with Thrasher's method so that the confidence score is compared to a predetermined threshold value, as taught in Waibel, to repair misrecognition of speech (col. 1, lines 9-12).

As to claim 4, 8 and 12, Gong teaches

determining the adaptation speech recognition model **(adaptation of HMM for speaker and acoustic environment, col. 1, lines 38-40)** based on the at least one sample period and at least one of the background model and transducer model **(background model is determined based on the samples taken during the sample period, col. 2 lines 43-45 & element 18, Fig. 1).**

saving the background and transducer model **(background noise is recorded and estimated, col. 2, lines 43-44)**.

However, Gong does not teach parameterized background and transducer models.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to parameterize Gong's model in order to modify or adjust acoustic characteristics, thus adapting to acoustic changes in speech signals caused by different transducers and noise backgrounds.

Conclusion

5. The following art made of record and not relied upon is considered pertinent to applicant's disclosure *Takagi (5,890,113); Boies et al. (6,502,070); Glodberg et al. (5,970,446); Alshawi (6,233,544); Chou et al. (5,797,123); Mohri et al. (6,243,679) & Pan et al. (6,304,844).*

Takagi teaches environmental adaptation of speaker model.

Boies et al. teach adaptation of speech patterns using channel-specific models.

Goldberg et al. teach background noise models to determine a caller's noise characteristics.

Alshawi teaches language translation.

Chou et al. teach key-phase detection and verification for flexible speech understanding.

Mohri et al. teach pattern recognition for reducing graph of speech signals.

Pat et al. teach ASR with distortion measure, to obtain the difference between two measurements of a signal giving the greatest similarity of a word, related to transducer of mobile communications device.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Myriam Pierre whose telephone number is 703-605-1196. The examiner can normally be reached on Monday – Friday from 5:30 a.m. - 2:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Smits can be reached on 703-306-3011. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

02/17/05

TĀLIVALDIS IVARS ŠMITS
PRIMARY EXAMINER